

*Helping Massachusetts Municipalities Create a Greener Energy Future*



*Webinar*

*March 9, 2011*

*2:00 pm*

**COMMONWEALTH OF MASSACHUSETTS**

*Deval L. Patrick, Governor  
Richard K. Sullivan, Jr., Secretary  
Mark Sylvia, Commissioner*

**Introduction:  
Municipal Energy Success  
Stories & Lessons Learned**

*Meg Lusardi*

*Deputy Director*

*Green Communities Division*

# Green Communities Division

Serves as the hub for all Massachusetts cities and towns on energy matters



# Green Communities Division Programs & Resources for Municipalities

- Green Communities Grant and Planning Assistance Program
- MassEnergyInsight energy tracking and analysis tool
- Municipal Energy Efficiency Program
- Energy Management Procurement Assistance  
Eileen McHugh, Eileen.McHugh@state.ma.us
- ARRA stimulus funding
- Website filled with tools & resources for municipalities  
[www.mass.gov/energy/greencommunities](http://www.mass.gov/energy/greencommunities)
- Email updates via listserv – Sign up today by sending an email to:  
[join-ene-greencommunities@listserv.state.ma.us](mailto:join-ene-greencommunities@listserv.state.ma.us)

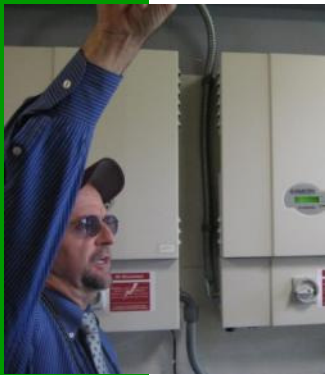


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## OUTREACH - REGIONAL COORDINATORS

- Regional Coordinators act as direct liaisons with cities and towns on energy efficiency and renewable energy activities
- Located at each of the DEP Regional Offices:



SERO – LAKEVILLE: Seth Pickering  
[Seth.Pickering@state.ma.us](mailto:Seth.Pickering@state.ma.us)

NERO – WILMINGTON: Joanne Bissetta  
[Joanne.Bissetta@state.ma.us](mailto:Joanne.Bissetta@state.ma.us)

CERO – WORCESTER: Kelly Brown  
[Kelly.Brown@state.ma.us](mailto:Kelly.Brown@state.ma.us)

WERO – SPRINGFIELD: Jim Barry  
[Jim.Barry@state.ma.us](mailto:Jim.Barry@state.ma.us)



# Recording & Presentation

- The webinar is being recorded and will be available on our website in approximately 48 hours at:  
[www.mass.gov/energy/greencommunities](http://www.mass.gov/energy/greencommunities)
- The slide presentation will also be posted at:  
[www.mass.gov/energy/greencommunities](http://www.mass.gov/energy/greencommunities)
- Websites are also listed at end of presentation



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**Municipal Energy Success  
Stories & Lessons Learned**

*Tom Witkin*

*Communications Coordinator*

*Green Communities Division*



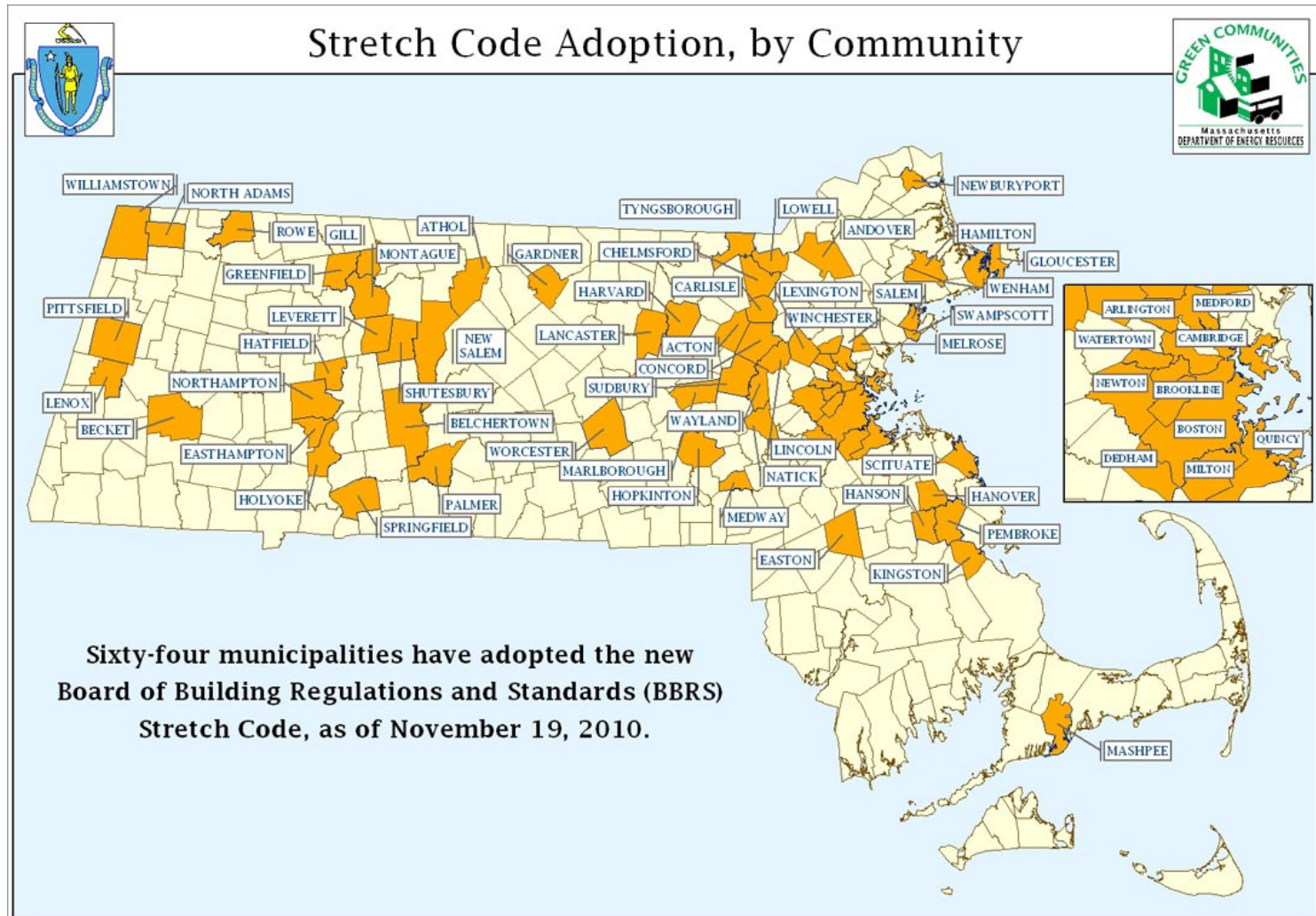
# Green Communities Impact



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# Green Communities Impact

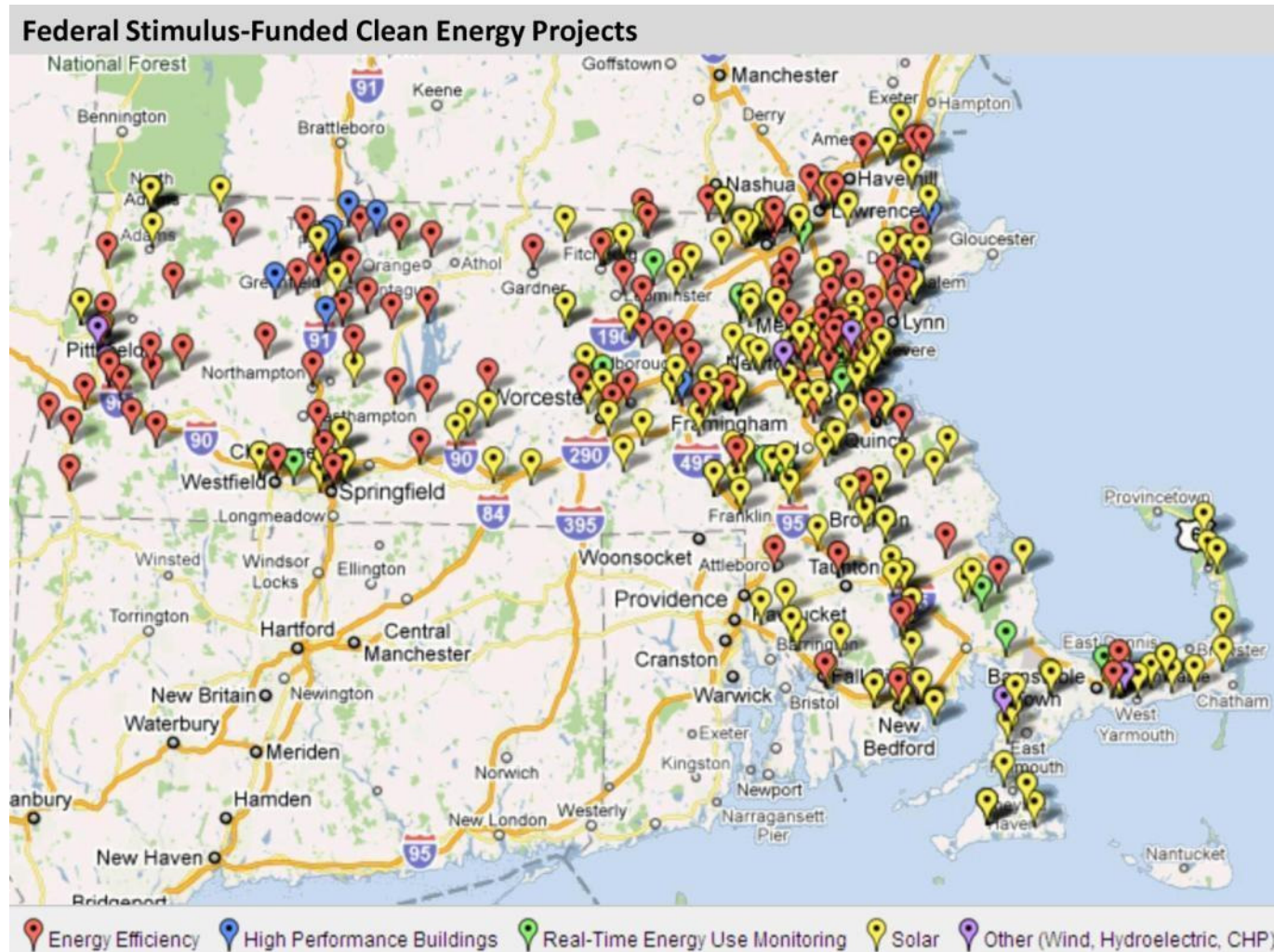


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# ARRA Clean Energy Impact



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# Green Community Division Impact

- Green Communities Grants
  - \$11.9 million awarded to cities and towns
  - MassEnergyInsight will monitor energy use, cost and emissions
- ARRA EECBG Municipal Subgrants
  - \$12.2 million awarded to 94 cities and towns with < 35,000 people
  - 16 efficiency and renewable projects completed
  - Remainder on track for June 30, 2011 completion



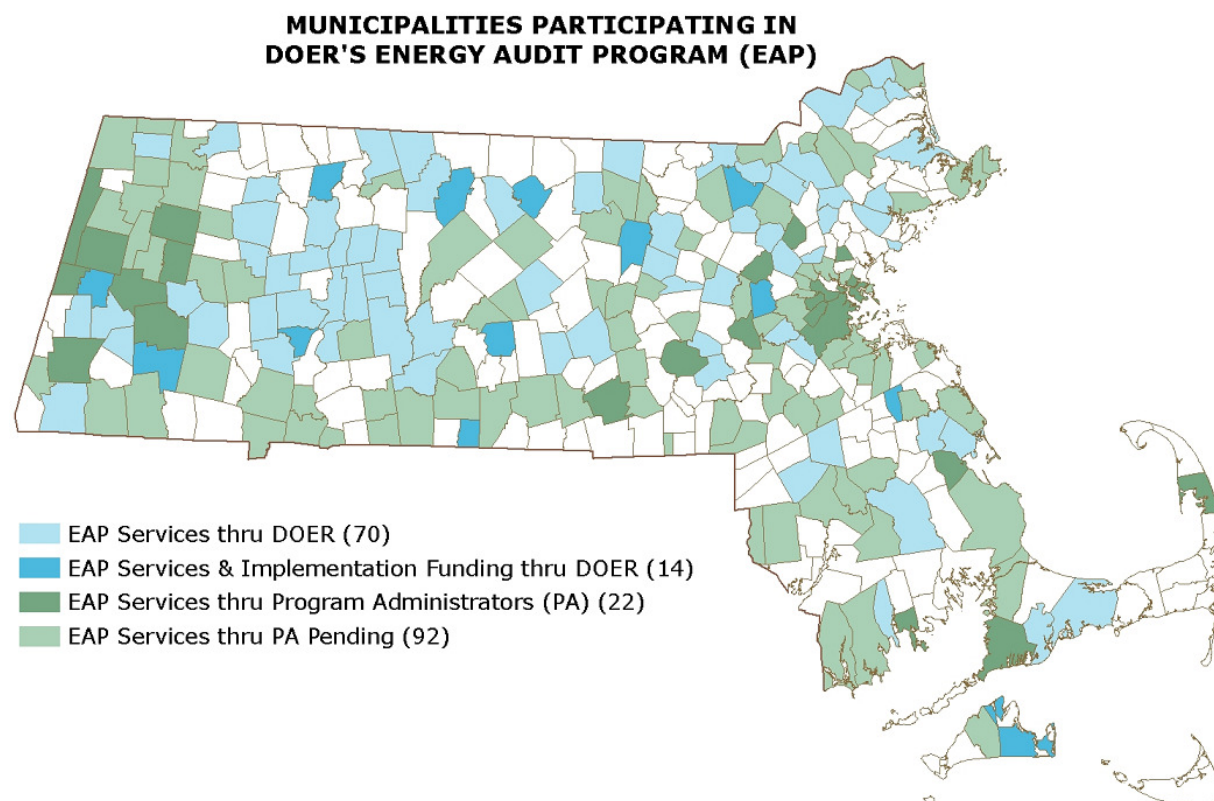
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# Green Community Division Impact

- Energy Audit Program

Helped municipalities, school districts, water and waste water districts identify and implement energy efficiency measures



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# Question 1

Has your city or town received one of these energy-related grants?

- Yes, Green Communities Grant
- Yes, an EECBG (Energy Efficiency and Conservation Block Grant)
- Yes, an energy grant from another program or agency
- Yes, more than one of the above
- No



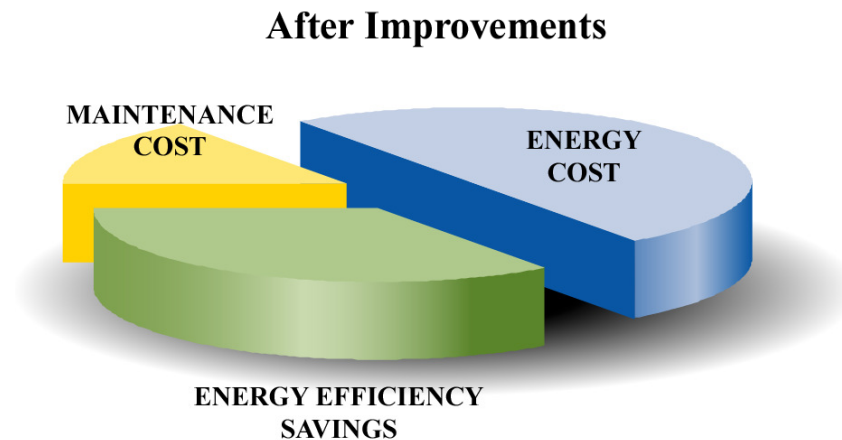
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# Other Green Community Division Impact

Provided consulting services funded by ARRA to 28 municipalities pursuing energy savings performance contracts and solar power purchase agreements



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# Green Communities Impact

Energy Code Education – Trained so far, 1230 code officials (and 758 others) in 242 towns on Massachusetts Stretch Energy Code and International Energy Conservation Code



# Other Green Community Division Impact

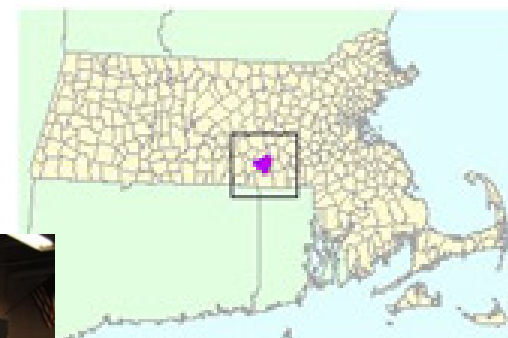
Trained to date 304 individuals in 183 towns to use MassEnergyInsight to benchmark and monitor ongoing energy use, costs, and emissions



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# Sutton Success Story



On January 3<sup>rd</sup>, 2011 at Sutton's Simonian Early Learning Center, officials flipped 4 switches

- on 2 Solectra inverters
- connected to 898 Schott Solar PV panels
- began generating electricity from the 201.8 kW system on the roof of the building.



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# Sutton Success Story



# Sutton Success Story

## Background

- August 2008: Board of Selectmen established a town goal to pursue energy conservation and renewable energy
- May 2009: town approved funds to replace 20-year-old leaking roof of the Early Learning Center (ELC: K-2<sup>nd</sup> grade)
- Town decided to consider a photovoltaic system for the roof based on feasibility study



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# Sutton Success Story

## Actions – Phase One

- Consultant performed engineering and cost study to determine:
  - structural capacity of the Learning Center roof
  - suitability for installation of a photovoltaic energy system
  - preliminary system design with schematic plans and cost estimates



# Sutton Success Story

## Actions – Phase One

- Identified sources of funding through public and/or private sources:
  - town funds / loans
  - grants
  - rebates and incentives
  - Solar Renewable Energy Credits (SRECs)
  - appropriations



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# Sutton Success Story

## Actions – Phase Two

- Applied for two EECBG grants
  - solar electric (photovoltaic) panels
  - technical assistance
- February 2010: received maximum grant award of \$150,000 for photovoltaic panels and \$20,000 for technical assistance services
- Conducted final feasibility and design study
- May 2010: approved at Town Meeting a loan, with contractor final notice to proceed



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# Sutton Success Story



# Sutton Success Story

## Factors: winning the grants

“ . . . we had a positive feasibility study already in hand . . . we were out to bid for contractors and . . . ‘shovel ready.’ (Those) were factors that helped us . . . ”

*James Smith  
Town Administrator  
Town of Sutton*



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# Sutton Success Story

## Challenges

- Construction start delayed 60 days: long lead time on solar panel racking system
- Paperwork and reporting requirements for ARRA grant
- Lengthy National Grid interconnection process – nearly two months
  - administrative delays
  - difficulty installing dedicated phone line tied into the meter (for net metering)



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# Sutton Success Story

## Overcoming challenges

- Consultant's technical assistance provided energy project management expertise
- Interconnection
  - consultant and telecom provider installed a conduit from a nearby telephone pole to the meter
  - telecom provider ran a dedicated line to the meter
  - NGRID's lead account manager facilitated process



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# Sutton Success Story

## Overcoming Challenges – Financial Structure

- Funding sources:
  - Existing loan
  - New town loan
  - Stimulus grant (EECBG)
  - Clean Energy Choice grant
- Revenue sources:
  - Solar renewable energy credits
  - Reduced town energy budget

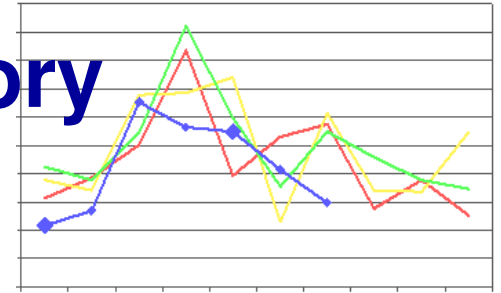


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# Sutton Success Story

## Results



*“With the lessons we learned on this project we are designing another PV system of similar size on our New Middle School / High School which is going out to bid for construction this spring.”*

- Expected annual renewable energy produced: 242,218 kWh
- Projected annual cost savings of \$25,340
- Anticipated annual GHG reduced: 215,574 lbs CO<sub>2</sub>
- Learning opportunity for approximately 800 kids in the Early Learning Center and elementary school



# Sutton Success Story





## Question 2

Is your city or town working on an energy project?

- Yes
- No
- No, but we plan to within the next six months
- No, but we plan to within the next year



# MassEnergyInsight Impact

## Background

- Cities and towns need to understand their energy use to make informed decisions
- Adoption demands a user-friendly system that
  - automatically incorporates investor-owned utility data
  - integrates reporting and the organizing tools into a single system

manual spreadsheet

3	Sum of MMBtu	Column Labels						
4	Row Labels	B100	B20	Diesel w/BioDiesel	Diesel No Lead	Electricity	Heating Fuel	Grand Total
5	Junior HS					12,180	28,718	40,898
6	High School					43,214	42,639	85,852
7	Administration					44	363	407
8	Buses			27,321				27,321
9	Center Fire Station					608	1,523	2,131
10	Citizens Library					50	217	267
11	Civil Defense					44	363	407
12	Congregation House					8,548	25,540	34,088
13	DPW Office					1,107	1,178	2,285
14	DPW Salt Shed					76		76
15	Gates					15,179	45,039	60,217
16	Library					4,498	2,912	7,410
17	Other Lighting					32		32
18	Parker Damon					17,779	16,372	34,151
19	Public Safety Bldg					3,999	3,047	7,046
20	Senior Center					357	570	927
21	South Fire Station					308	1,036	1,344
22	Street Lights NStar only					5,257		5,257
23	Town Hall					1,381	1,707	3,088
24	Traffic+Security Cmbnd					416		416
25	Vehicles	588	813	1,639	22,377	36,312		61,728
26	West Fire Station					308	947	1,255
27	Wind House					37	153	189
28	WWTF					1,967	684	2,651
29	Grand Total	588	813	1,639	49,699	36,312	117,389	173,007



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# MassEnergyInsight Impact

DOER developed **MassEnergyInsight**



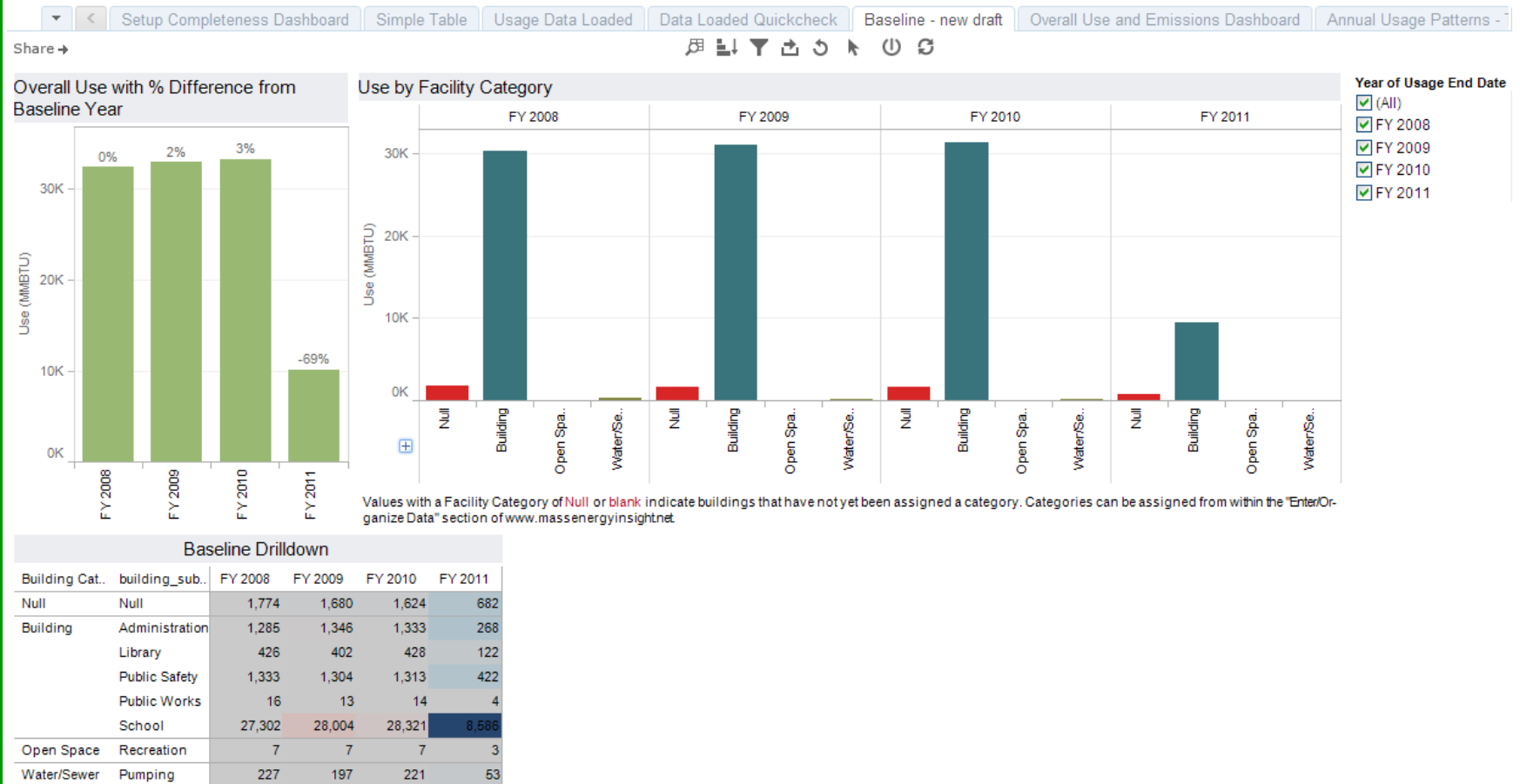
- **Free**, web-based energy information reporting system



- Available to all Commonwealth cities and towns



# MassEnergyInsight Baseline Report



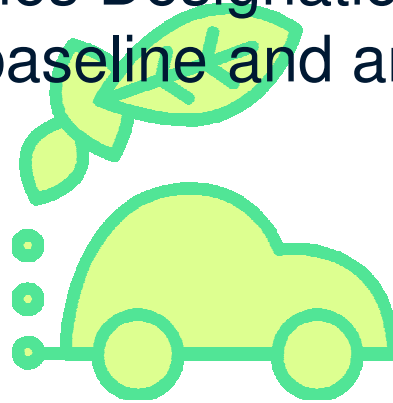
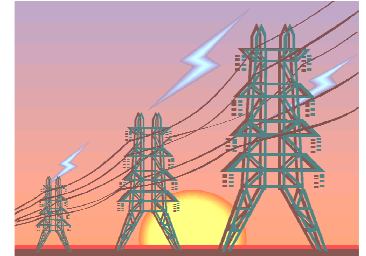
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# MassEnergyInsight Benefits

## Helps Cities & Towns

- Understand their energy use and emissions
- Monitor their energy use and cost over time
- Benchmark buildings and identify targets for energy efficiency projects
- Communicate and share energy information
- Meet Green Communities Designation Criterion 3: create an energy use baseline and an Energy Reduction Plan



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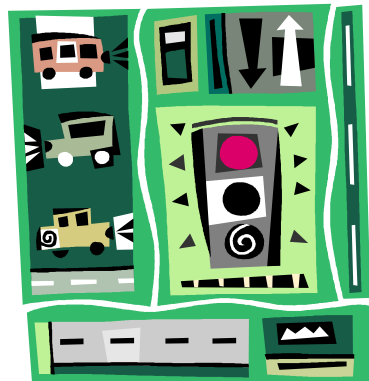
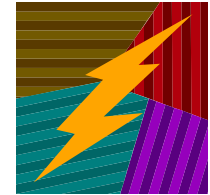




# MassEnergyInsight Benefits

Includes all

- Municipal operations: buildings, streetlights, vehicles, water and sewer treatment and pumping
- Fuels: electricity, oil, natural gas, propane, gasoline
- Attributes: use, cost, emissions



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# MEI Spurs Communities to Action

- **Medford** used the MEI reports to demonstrate that the high school is the largest energy user in the community and warrants the greatest scrutiny.
- **Williamstown**'s reports indicated that their new green elementary school is an unexpected energy hog. As a result, they brought in National Grid in to do an audit of the school and figure out what is going on.
- **Millbury** reports highlighted the high cost of their streetlights, so they are now looking into new streetlights. Additionally, the reports pushed them to get energy audits on 2 buildings.



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# MassEnergyInsight Overall Use & Emissions

## Fuel

- Gas
- Electric
- Oil

## Year

- ☐ FY 2005
- ☐ FY 2006
- ☐ FY 2007
- ☐ FY 2008
- ☒ FY 2009
- ☐ FY 2010

## Department Emissions

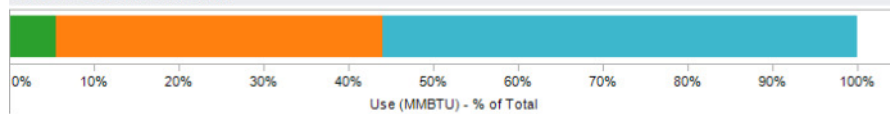
- 101,909
- 1,000,000
- 2,000,000
- 3,132,802

## Building Emissions

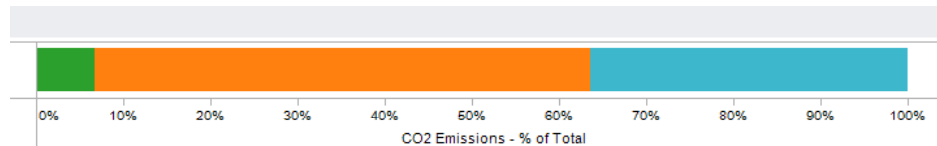
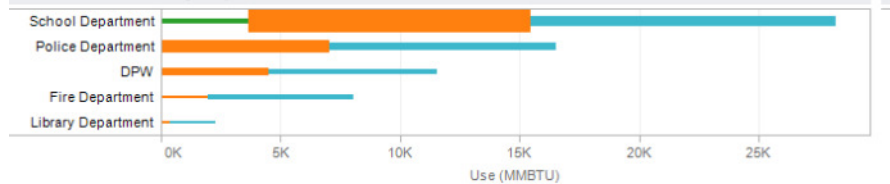
- 10,817
- 500,000
- 1,000,000
- 1,557,034



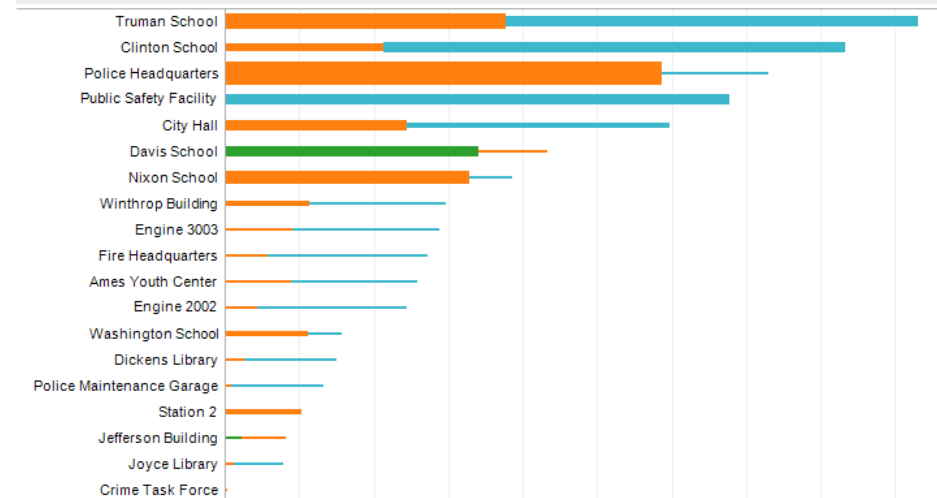
Overall Use and Emissions



Use and Emissions by Department

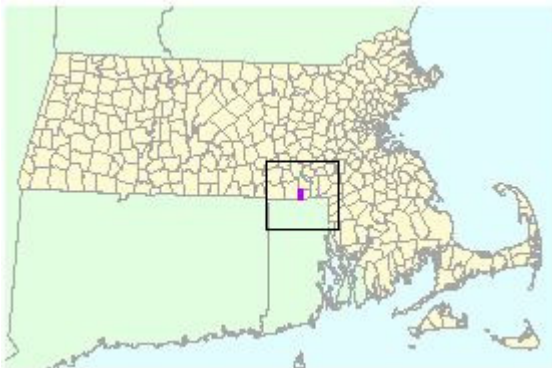


Use and Emissions by Facility





# Millville Elementary School Power to Save Campaign

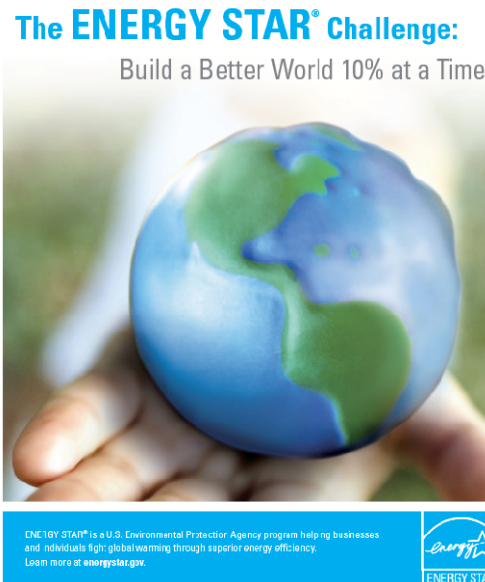


Slides contributed by Marketing Drive  
with cooperation from National Grid

# Millville Elementary School Power to Save Campaign

Fall 2007: School Council met to review budget

- Discussed opportunities to lower operational costs through US EPA's ENERGY STAR Challenge
- Partnered with National Grid's Whole Building Assessment



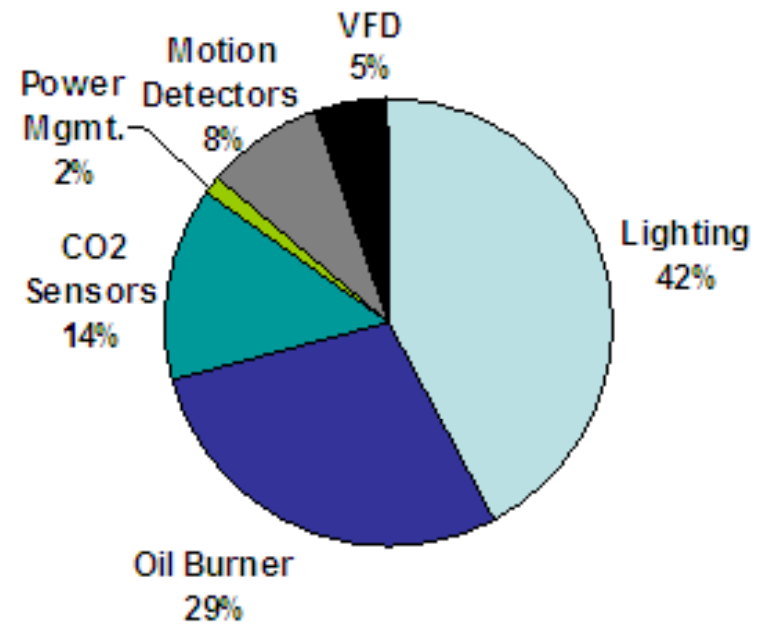
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# Whole Building Assessment Results

- National Grid vendors conducted lighting & mechanical audits over summer 2008
- Projected \$36,000 in potential savings per year from recommended improvements
- Total cost of recommended improvements was \$140,000



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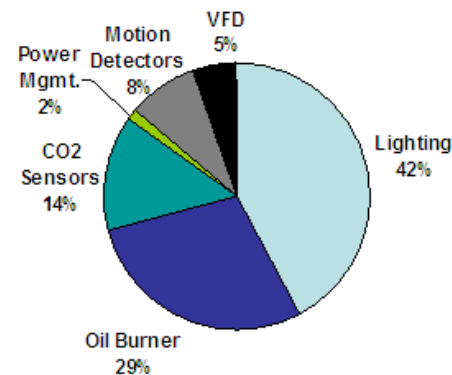
# Project Financial Incentives

## \$138,000

	Lighting	Mechanical	Boiler
National Grid*	\$35,623	\$31,768	
International Power**	\$15,267	\$13,616	\$41,767

\* Whole Building Assessment Initiative - part of Mass Save

\*\*carbon mitigation grant



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# Improvements from Assessment

- Lighting retrofit completed in December
- Mechanical improvements near completion



# Educational Campaign Approach

- Engage teachers to integrate energy and environment themes into the classroom
- Use credible information sources for content development
  - US EPA
  - National Grid
  - US DOE
  - Alliance to Save Energy
- Secure donations from local businesses and cultural institutions to provide incentives for participation



that was easy.



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# In-School activities

- Lesson integration
- Special presentations
  - Campaign launch
  - The Climate Group
- Contests & activities
  - Poster contest
  - Monthly family contest
- Existing activities
  - Community reading day
  - Colonial Feast
  - Spring concert & art show



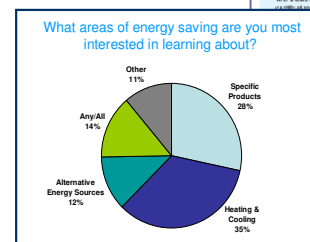
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# Family Outreach

- Monthly newsletter
  - Seasonal energy saving tips
  - Family contests
  - Upcoming events
- Informational tables at all parent events
- Parent Association
  - Fundraisers
  - School beautification



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# Community Outreach

- Weekly home energy saving tips on local cable
- Media outreach on school activities
- Regular updates to administration & town officials
- Community learning events



# Knowledge Promotes Success

- Green Communities will promote increased knowledge exchange between communities
  - Read about statewide plans and successes in quarterly newsletter coming soon
  - Participate in an online energy community-of-practice
    - Content “owned” by Massachusetts cities and towns
    - Facilitated by partner organization(s) (RFR deadline March 14)



# Q&A



## DOER Contacts

- Communications & Collaboration  
[Tom.Witkin@state.ma.us](mailto:Tom.Witkin@state.ma.us)
- DOER Regional Coordinators:
  - Southeast: [Seth.Pickering@state.ma.us](mailto:Seth.Pickering@state.ma.us)
  - Northeast: [Joanne.Bissetta@state.ma.us](mailto:Joanne.Bissetta@state.ma.us)
  - Central: [Kelly.Brown@state.ma.us](mailto:Kelly.Brown@state.ma.us)
  - Western: [Jim.Barry@state.ma.us](mailto:Jim.Barry@state.ma.us)



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# THANK YOU!

- The webinar was recorded and will be available for viewing at your convenience on our website at:  
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